# Before the
# Federal Communications Commission

## Washington, D.C. 20554

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| In the Matter of: | ) | **November 24th, 2004** |
| Improving Public Safety Communications in the 800 MHz Band | ) | |
| Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels | ) | ***WT Docket No. 02-55*** |

**Mexican border re-banding plan.**

Arizona Public Service Company (APS) submits this 800 MHz band Mexican border plan.

APS and its parent, Pinnacle West Capital Corporation, have submitted several sets of comments in this rulemaking[1] and have also submitted comments as a participant in the "Border coalition". APS is submitting this Mexican border plan with the hope that it will speed the implementation of the 800 re-banding report and order and provide APS and Arizona public safety and critical infrastructure entities the interference relief and spectrum needed in the Mexican border area.

APS has a state wide 800 band trunking system and as such has experienced the inconsistencies, interference, and illogical restrictions that are found in the current Mexican border zone. APS advocates the following course of action in regards to the Mexican border treaty changes that will provide Public safety with the additional spectrum promised with the re-banding effort, will use the spectrum more efficiently, will maintain proportional allocations with Mexico, will clean up the existing inconsistencies, and will provide for new low site technology in this portion of the band..

[1] Arizona Public service CO / Pinnacle west Capital Corporation has submitted responses on: May 7th 2002, August 7th 2002 (as D Brown), September 23rd 2002, February 10th 2003, February 10th, 2003 (as border coalition), December 19th 2002 (as border coalition), May 24th 2004,.

## Mexican border re-banding plan Summary.

The proposed plan has 3 objectives dealing with the treaty negotiations:

1) Swap the existing NPSPAC region (½ of the channels in 866-869) for ½ of the channels currently allocated to Mexico at the target NPSPAC location (851-854).
2) Allow normal licensing of Mexican allocated channels on US soil in the border area with the requirement that it does not exceed the maximum power flux density of -107 dB at the border.
3) Eliminate the offset channel requirement in the Mexican border area.

A forth, but critical, component to clean up the Mexican border area is that the FCC channel allocation plan in the border area match the channel allocation plan in the regular area.

### 1) Swap the existing NPSPAC region.

The simplest and most straight forward treaty re-banding plan for the Mexican border area is to simply swap the existing NPSPAC region (1/2 of the channels in 866-869) for ½ of the channels allocated to Mexico at the target NPSPAC location (851-854). Total spectrum allocation between the countries and all other allocations remain the same.

Also included is the swapping of the 5 interoperability channels and the allocation of these channels for public safety use in Mexico also.

This swap will allocate the 866-869 area to Mexico; however, Nextel with their low site technology will still be able to use a large part of this spectrum on US soil.

US licensing of Mexican Channels with restrictions of at-the-border signal strength (item 2 below), it will allow low site ESMR to utilize this spectrum in over 80% of the Mexican border area. Because low site ESMR station emissions typically do not extend beyond 7 miles in urban areas, areas such as Tucson, Arizona and areas on the North side of San Diego and which are removed from the Mexican border will have no loss of spectrum for low site users!

For areas close to the Mexican border, Nextel and other entities can share channels with Mexican entities utilizing an existing sharing agreement with Mexico.

There exists a **special coordination agreement with Mexico dated November 9th, 2000** that provides for this sharing. A copy of this agreement is attached[2]; it allows entities like NEXTEL to agree to share spectrum with Mexican telecommunications providers. Nextel has already taken advantage of this agreement and indeed is using Mexican channels on US soil in Yuma, Arizona. It is an interesting agreement which

[2] This document and also Protocol 3 that is the Mexican agreement for this band can be found at: ***www.fcc.gov/ib/sand/agree/mex_nonbroad_agree.html****

even Public Safety entities may be able to utilize if they have a good working arrangement with a neighboring Mexican entity.

A sharing agreement such as this is one method to increase spectrum utilization in the Mexican border area. Nextel is one of the few SMR's in the US that can take advantage of this special Mexican agreement. By allowing and encouraging NEXTEL to share Mexican channels above 862 MHz, this provides additional spectrum needed in the 800 band, and essentially doubles their useable spectrum at the border.

**2) Allow normal licensing of Mexican allocated channels on US soil in the border area with the requirement that it does not exceed the maximum power flux density of -107 dB at the border.**

In actuality this capability is already provided for in the existing interpretation of the treaty[3], as several entities already have transmitters operating on Mexican channels on US soil. What is needed is:

- Formalizing the application process of the at-the-border and across-the-border signal strength limits. Require that all applications for transmitters in the border zone include an at-the-border signal strength graph. The operating parameters for a given license must be specific to assure that the at-the-border signal strength level will not be exceeded.
- Modify or remove the treaty limit on ERP emissions based on height above sea level. Instead assure that the across-the-border emissions are conforming.
- The Mexican channels needed to be included in the US channel allocation specifications, to be compatible with the US Channel allocations.
- Require that **all transmitters on US soil using Mexican channels be site licensed in the ULS**.

Low site ESMR and low site Public Safety sites will be able to use the Mexican allocated channels to within 7 to 10 miles of the border. Use of directional antennas may reduce this distance even further. This effectively reduces the size and impact of the Mexican border zone from 70 miles to 7 miles for low site users. This dramatically increases the spectrum efficiency and increases the utilization of the spectrum, and provides the much needed spectrum.

Interference from high site transmitters in Mexico should not be a factor, the FAR transmitter will not appreciably affect the NEAR site communications for users of the low site transmitters on US soil.

In areas like Tucson which straddles the 70 mile border zone edge, 100% of the NPSPAC spectrum would be available for public safety use, if low sites use the Mexican allocation, thus providing the same number of channels as in the non-border zone areas.

[3] See Protocol 3 found at: ***www.fcc.gov/ib/sand/agree/mex_nonbroad_agree.html***

### 3) Eliminate the offset channel requirement in the Mexican border area

One of the best things that can be done to promote spectrum efficiency and interference protection in the Mexican border zone is to eliminate the offset channel requirement in the Mexican border area. Protocol 3 does not specify that the US block of channels (856-861) must be offset. However, it does identify offset channels for the alternating channels in 861-866.

In the communities close to the 70 mile border zone edge from 10 to 20 additional clear channels would become available. In Tucson, AZ twelve 12 channels would be available if the frequencies plans were aligned. This number would be greater if the license overlaps due to mis-coordination were not a factor.

This will allow frequency coordination on an individual channel basis, instead of considering 2 overlapping channels that have different band plans. The original basis for the offset channels was to minimize interference from across the border from high site transmitters. This across the border interference has failed to materialize; the dominant interference source today is low site co-channel and low site adjacent channel ESMR on both sides of the border.

In Tucson, Arizona at least 100 channels (1/3 of those available) have already been mis-coordinated with overlapping co-channel offset licenses, some within 4 miles of each other, the result being that the transmitter that puts out the most power becomes the user of the spectrum. Almost all of the overlaps are due to ESMR regular channel plan licenses overlapping PS\ILT\BUS licenses on the border channel plan. If ESMR actually used all the spectrum it has licensed then Public Safety and other 800 band users would have significant interference impeding the ability to communicate in these areas. The use of overlapping offset channels may work in APCO Region 5 where the 70 mile boundary is between population centers but in urban areas that are at the 70 mile border zone edge it will be an experiment that can only make interference problems worse, not better, and would certainly not provide the additional quality channels for Public Safety or Critical Infrastructure use.

All states that border Mexico have to deal with 2 different band plans and channel allocation plans. By making the border zone match the regular zone as close as possible, it will promote the interoperability that Public Safety and Critical Infrastructure needs. It will remove the double border situation to a point were only one RF border would have to be managed. Officers would not have to remember to change the band plan on their radio while they are in pursuit when the radio coverage changes band plans.

Although this requirement will require a 100% retuning effort in the Mexican border zone, the elimination of the offset channels will allow a consistent efficient channel plan to be applied in the Mexican Border States, and improve interoperability.

**4) Assure that the band plan in the Mexican border zone area corresponds with the band plan in the regular area.**

Carry the regular US channel allocation plan into the US border zone area so that dissimilar users are not co-channel at the 70 mile edge of the border zone. This should also assure that the use of Mexican channels on US soil (on a non-interfering basis with Mexican users) is compatible with adjacent channel users and users in the regular area.

By applying the same band plan in the Mexican border area as in the regular area, Public Safety gains the spectrum that Nextel currently holds between 856 and 862 MHz. After swapping for Non-Nextel users above 861 MHz, this will be approximately 45 channels in the Tucson area and similar gains in other border areas.

Without going into details of channel allocation:

- Public safety gets: 130 US 25khz channels (in 856-861), 40 restricted 25khz Mexican channels (854-855), 106 NPSPAC US channels, the 5 interoperability channels, and 106 restricted Mexican NPSPAC channels (851-854).
- Critical infrastructure / ILT / BUS get 70 US channels (in 856-861), 40 restricted Mexican channels (855-856).
- SMR and ESMR get 100 US channels (861-866), 220 restricted Mexican channels (861-869), (with 861-862 restricted to high site SMR).

These were simply allocated by taking the existing regular channel plan and reallocating 70 of the interleaved SMR channels to PS.

**During the transition**

To help eliminate co-channel interference, the rules during the transition should allow and promote the swapping of channels between US licensees in the Mexican border zone to swap PS/ILT/BS users that are licensed in the range 861-866 MHz with NEXTEL and other SMR's that have licenses in 856-862 MHz. This will eliminate some of the conflicts (excluding the NPSPAC conflict) at the Mexican border zone edge due to dissimilar band plans. This is practically important in communities such as Tucson, Arizona which straddles the 70 mile border zone edge. Swapping of the 47 PS/ILT/BS Tucson area licenses above 861 MHz (not including the NPSPAC channels) can easily be accommodated by NEXTEL with 105 Tucson area licenses in 856-861 MHz. These Interference mitigation benefits can be gained without waiting for the border zone treaty to be re-negotiated.

During the transition and the treaty negotiations period, applications for new 800 MHz licenses in the border zone should be conforming to the expected band plan. For example NEXTEL should not be continuing to license frequencies below 862 MHz and PS/ILT/BS should not be licensing new frequencies between 862 and 866 MHz.

A means to update the TA as to the progress of the treaty negotiations should be established. Is it a correct assumption that the FCC is the entity that is responsible to facilitate the treaty negotiation? Are the costs related to the treaty negotiations a cost that the TA will also administer?

**SUMMARY**
The revised Mexican treaty strategy should strive to provide additional spectrum for Public Safety as promised with this re-banding effort. This Mexican border band plan, namely that of swapping the NPSPAC spectrum, extensive use of Mexican channels by low sites, and allowing ESMR to share the Mexican channels above 862 MHz with Mexican entities, should provide an additional 40 to 60 channels for Public Safety in the border areas, and still provide NEXTEL and other low site SMR's with nearly the same usable spectrum they have in the regular area.

If you have any questions or concerns please address them to:

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Sincerely,

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